

Yale University *School of Medicine*

STUDIES IN THE CREATIVE PROCESS

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Reply to: 139 Webb Circle
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September 27, 1974

Professor Joshua Lederberg
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Dear Professor Lederberg:

Thank you so much for such a stimulating and helpful letter. The points you raised were all, I think, quite important and, while I have considered some of them, there is much still unanswered and much you have given me to think about. The "uncoached testimony", of course, is enormously valuable to me.

On specific points, I too have wondered about the relationship between a fact of nature, such as the anti-parallel orientation of chains, and the question of the scientist's use of Janusian thinking to discover that fact. My tentative conclusion has been based on a somewhat philosophical observation, one which I thought you were also suggesting, in our interview, when you pointed out that scientists create in the same sense as artists insofar as they choose certain aspects of the unbounded possibilities for knowledge extant in the world. In other words, is it not possible that Janusian thinking plays a role in scientific discovery because science constantly structures knowledge in such a way as to present seemingly unsolvable paradoxes? Janusian thinking, because of its particular property of asserting simultaneous antitheses (it is actually not pure dialectic as I have formulated it, since dialectic involves sequential antitheses) would then be ideally suited for initiating breakthroughs and pointing to new discoveries. In the end, of course, the issue is not going to be settled by philosophical or other speculation. One of the reasons I keep pushing on with Janusian thinking is my continual discovery of new manifestations. Because you raised the question, I have taken the liberty of enclosing a section of a recent not-yet-published article of mine which pertains to Einstein's discovery of General Relativity. If you have the time, I would be most interested in your reactions.

As for considerations of symmetry, I take to heart your point about that and will consider it further. The only immediate thought I have about it pertains to the observation that our notions of opposition derive directly from the fact of symmetry in nature, indeed the difference between pure negation and opposition is exactly in the area of symmetry, oppositions being symmetrical while negations are not. Whether opposition or symmetry is primary in creative thinking is therefore not immediately clear to me.

I really don't think ambiguity, even Empsonian ambiguity, is more appropriate -- at least in art. Ambiguity is too open ended, it merges imperceptibly into lack of clarity and confusion rather than describing the specific presentational power of artistic symbols. Schizophrenic thinking, for example, is quite ambiguous but not art. Janusian thinking yields a very specific type of ambiguity and I think it therefore brings us closer to operational definitions and testable hypotheses than the more general term.

I certainly agree with your assertion of the importance of multilevel thinking and I see its operation in the WAT, science and psychotherapy. One of the aspects of that, I believe, is a tendency to think in structural or, as you say, metalevel terms. And structural thinking is perhaps a very appropriate general term. I have, in fact, recently discovered another thought process (one that pertains more directly to imagery) and this latter process, like Janusian thinking, also pertains to structure. I won't go into details about this now, I hope we can talk more in the future.

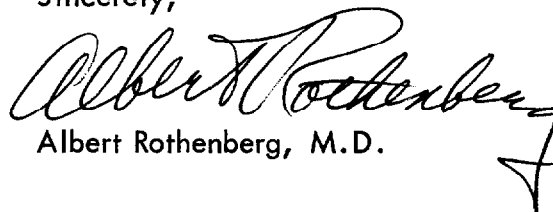
Only two final comments about the WAT and about the future. Yes, there may be strategies characteristically developed on the WAT, as you suggest, but it is still important to account for the different strategies adopted by creative people as compared to controls. Also, for example, why isn't there a strategy of giving synonyms or other consistent categories? In my scoring of the results, I do take into consideration the popular response strategy, as I mention in my article. I have not scored your results yet but I, too, suspect they support my thesis (in ways I hadn't seen in anyone before). There are studies of late and early responses and the results are that opposite responding is consistent throughout (split half reliability), more so than giving popular responses.

How to determine whether Janusian thinking or some other factor is crucial in the creative process? There, of course, is the rub. Although I have not previously been interested in trying to facilitate or develop creativity, I have recently been thinking about designing some crucial test experiment in which I train subjects beforehand and then assess the outcome. If you have any suggestions to make about such an experiment, I would be very grateful.

Please excuse the excessive length of this letter; it is determined only by the richness and stimulation of your response.

With best wishes and appreciation,

Sincerely,


Albert Rothenberg, M.D.

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Enc.